

**IN THE CLAIMS**

The following listing of the claims is provided in accordance with 37 C.F.R.

1.121:

1. (original) A system for controlling blade tip clearance in a turbine, the system comprising:

a stator including a shroud having a plurality of shroud segments;

a rotor including a blade rotatable within said shroud;

an actuator assembly positioned radially around said shroud, said actuator assembly including a plurality of actuators;

a sensor for sensing a turbine parameter and generating a sensor signal representative of said turbine parameter;

a modeling module generating a tip clearance prediction in response to turbine cycle parameters;

a controller receiving said sensor signal and said tip clearance prediction and generating at least one command signal;

said actuators including at least one actuator receiving said command signal and adjusting a position of at least one of said shroud segments in response to said command signal.

2. (original) The system of claim 1 wherein:

said at least one command signal includes a plurality of command signals; each of said plurality of actuators receiving a respective command signal to adjust a position of a respective one of said shroud segments.

3. (original) The system of claim 1 wherein:

said stator includes an inner casing mechanically coupled to said shroud, said actuator assembly positioned radially around said inner casing.

4. (original) The system of claim 1 wherein:  
said controller derives an actual turbine parameter in response to said sensor signal;  
said controller generating said at least one command signal in response to said actual turbine parameter.
5. (original) The system of claim 1 wherein:  
said modeling module generates said tip clearance prediction in real-time.
6. (original) The system of claim 1 wherein:  
said modeling module updates a model used for generating said tip clearance prediction in response to environmental changes.
7. (original) The system of claim 1 wherein:  
said modeling module updates a model used for generating said tip clearance prediction in response to engine degradation.
8. (original) The system of claim 1 wherein:  
said actuator includes a circumferential screw coupled to a drive mechanism, said command signal being applied to said drive mechanism to control rotation of said circumferential screw.
9. (original) The system of claim 1 wherein:  
said actuator includes a radial screw coupled to a drive mechanism, said command signal being applied to said drive mechanism to control rotation of said radial screw.
10. (previously canceled).

11. (original) The system of claim 1 further comprising:  
a passive tip clearance control apparatus operating in conjunction with actuators to position at least one of said shroud segments.
12. (currently amended) A method for controlling blade tip clearance in a turbine having a blade rotating within a shroud having a plurality of shroud segments, the method comprising  
obtaining a turbine parameter, wherein obtaining the turbine parameter includes receiving a sensed parameter and deriving an actual turbine parameter in response to said sensed parameter;  
generating a tip clearance prediction in response to turbine cycle parameters;  
generating at least one command signal in response to said turbine parameter and said tip clearance prediction;  
providing said command signal to an actuator to adjust a position of at least one of said shroud segments.
13. (original) The method of claim 12 wherein:  
said at least one command signal includes a plurality of command signals, said providing including providing said command signals to a plurality of actuators to adjust a position of a plurality of said shroud segments.
14. (canceled).
15. (original) The method of claim 12 wherein:  
said generating said tip clearance prediction is preformed in real time.
16. (original) The method of claim 12 further comprising:  
updating a model used for generating said tip clearance prediction in response to environmental changes.

17. (original) The method of claim 12 further comprising:  
updating a model used for generating said tip clearance prediction in response to engine degradation.

18. (previously presented) A system for controlling blade tip clearance in a turbine, the system comprising:  
a stator including a shroud having a plurality of shroud segments;  
a rotor including a blade rotatable within said shroud;  
an actuator assembly positioned radially around said shroud, said actuator assembly including a plurality of actuators;  
a sensor for sensing a turbine parameter and generating a sensor signal representative of said turbine parameter;  
a modeling module generating a tip clearance prediction in response to turbine cycle parameters;  
a controller receiving said sensor signal and said tip clearance prediction and generating at least one command signal;  
said actuators including at least one actuator receiving said command signal and adjusting a position of at least one of said shroud segments in response to said command signal, wherein said actuator includes an inflatable bellows in fluid communication with a pump, said command signal being applied to said pump to control pressure of said inflatable bellows.